附录

本科毕业设计(附件)

题目：基于 BS 的高校实验设备管理系统设计与实现

院 （系）： 计算机科学与工程学院

专 业： 软件工程

班 级： 15060204

学 生： 张 彪

学 号： 15040308118

指导教师： 吴 琼，冯肖华

外文出处： Ijet

附 件： 1.译文；2.原文

2019 年 6 月

译文：

浏览器/服务器架构在大学英语在线学习系统

设计中的应用

摘要

为了实现大学英语学习的信息化管理，提高大学英语教学质量和改革在现有的教学模式，本篇论文意在设计一个在线大学英语在线学习系统，它将使用浏览器/服务器（B/S）作为整体架构，JSP 技术作为实现的编程语言，使用 MySQL 作为数据存储和数据管理工具。另外，这篇论文将会全面的分析网络英语教学的要求和管理方式，以及系统用户的需求。基于这一点，设计了相应的功能模块，数据库部分和以及系统体系的架构，并配有相关接口来达到我们的目的。这样的系统设计和实现可以提高英语教学的效率和质量，并有效的提升大家的英语教学水平，并可以适用于更加广泛的领域。

关键词：B/S，JSP，MySQL 数据库,在线英语学习，系统设计

1 介绍

信息化是当今世界经济发展的大趋势，同时我国教育领域的信息化程度也在逐年提升。为了适应基础教育的新观点以及国家近年来提出的相关改革政策，越来越多的中国学者对于教育产业的关注度也越来越高。然而，在中国现阶段的各大高校的大学英语教学过程中，传统的，偏离教育信息化趋势的英语教学模式依旧在我们的教学体制中被沿用。对于英语学习本身而言，要求在英语学习者和老师的之间需要高度的参与度，这样看来：传统的教学模式不再满足日益增长的教学需求。

不管是电子学习或者是在线学习，作为当今教育信息化发展的必要部分，它们都提供了一种新的沟通机制和丰富的学习资源，为教学提供全新的电子环境[3]。美国校园计算项目在 2015 年的美国进行一项调查显示，超过 85％的美国校园学校都有在实施在线学习系统，普及率从 2000 年的 10％增加到 85％。它说明在线学习有很好的应用前景和学习效果。虽然近年来的一些英语学习网站和在线学习平台不断涌在并在一定程度上丰富了教学资源同时它们也提供了多维学习选项，但是它们的系统仍然缺乏功能性，安全性，互动性和开放性。接着就有一些学者提出了基于语料库的英语学习模式，但依旧缺乏教学沟通，教学效果差的问题。 目前，现有的在线英语学习系统依旧会存在一

些缺点，如存在教学不完善机制，内容同质，缺乏创新，网络安全性不足。

本文意在提供一个注重高度互动的，智能的，安全的，富有英语文化气息的英语学习平台。该平台将使用 B/S 作为软件开发架构基础，使用 MySql 作为数据库平台开发的工具，并结合 JSP 技术构建动态 web 平台，并且在大多数情况下都可以实现重新开发和运营电脑硬件。与此同时，，该系统将使用面向对象的方法去解决实际的英语学习需求和教学管理需求。本篇文章将详细分析系统设计的目标的主要的功能需求，完成系统设计和界面设计，并最终实现了设计基于 B/S 结构的在线英语学习系统，实现该系统可以提高教学质量，满足教学数据，提高软件平台，硬件设备和网络设备的利用率，以及为交流，学习和互动的学生，教师和系统管理人员提供一个的信息交互平台。

2 相关的计算机技术介绍

2.1 B/S 模型

B/S 结构（浏览器/服务器模型）是一种伴随互联网技术发展在有效改进 C/S 结构后，通过在浏览器实现用户界面的一种网络模型。它的绝大多数的业务逻辑都在服务端实现。它极大的减少客户计算机的负载过程同时也提高了系统的维护和升级的效率。数据从 B/S 模型的表示层到应用层再到数据层，所以对于 B/S 这样系统结构也分为表示层，应用层和数据层。如图 1 所示：

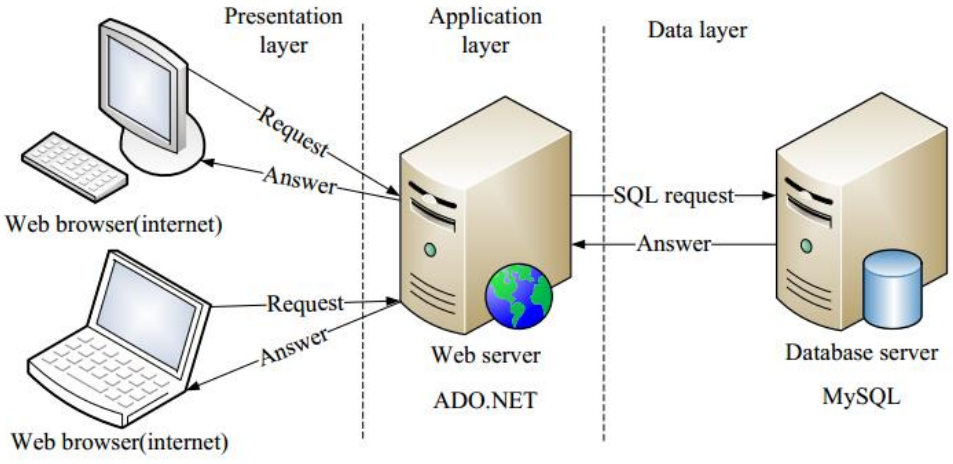

图 2.1　B/S 系统结构图

B/S 架构的软件有易于维护，易于系统升级的优点，并且由于主要的维护工作在服务器端，所以极大地提高了维护的效率（降低维护成本）。B/S 架构可以适用 Linux 操作系统，Windows 操作系统，并可以和各种免费的数据库结合，减少了跨操作系统的配置成本。

相比于 C/S 模型，B/S 模型可以构建在 WAN 上，并且也不是非常的依赖特别的网络硬件环境，有着很好的适应能力（可移植性）。C/S 模型交互通过

浏览器。常见的浏览器能够在几乎每台客户机上找到，导致安全性相对较低。因此，该模型适合应用于高交互需求和多用户的，但安全要求低的场景中。B/S 模型要求各个组件之间相互独立并且能够复用。总而言之，C/S 开发模型和 B/S 模型都是网络环境下的开发模型，业内在对 B/S 在进行分析后具有相对较多的优势，所以现在的大量应用逐渐从 C/S 模式转向 B/S 模式。

综上所述，我们当前的网络开发环境和业务要求更加适合使用 B/S 模式，由此将会带来很多便利上的优势，安全性等等。

2.2 JSP 编程语言

JSP，全称 Java Server Pages(java 服务器页)，是一种动态 web 技术标准。JSP 程序能够轻易的通过简单的开发 web 程序得到。通过简单的 HTML 基础，修改脚本文件，将能将 htm 文件可以转换为.jsp 文件。使用 JSP 开发技术，Web 服务器将接收来访问的 JSP 页面请求，然后执行程序段，最后将返回结果与 HTML 代码一起返回带客户端。

将 JSP 技术应用于 B/S 模型中有以下一些特点：

1. JSP 开发语言易于编写，可以快速掌握基于 HTML 和 Java 语言，只有在 HTML 页面中添加 JSP 字段由 Web 作者编写，可以实现 JSP 页面；
2. 只需要一个程序就可以实现多种操作。将所有的 JSP 编辑为 Java servlet 那么它将拥有 java 技术的所有好处;
3. 具备高可重用性，JSP 在重新调用的时候，只需要在内部进行更改和设计，无需修改代码即可提高系统的可重用性;
4. JSP 是跨平台的，符合 B/S 模型。JSP 几乎可以运行在所有的操作系统上，可以移植到不同的平台上；
5. 它可以与大多数据库相连，包括 Mircosoft Server，Oracle，Sybase，MySQL，Informix 等也可以实现之间的连接基于 JDBC（Java 数据库连接）的驱动程序和数据库。

2.3MySQL 的介绍

MySQL 是一个非常受欢迎的开源数据库管理系统。MySQL 服务支持重量级的生产系统，也可以嵌入和配置大的软件。

MySQL 的特性包括：1.它是由 C 或者 C++语言编译的，并且可以由多个编译器测试以确保代码的可移植性;2、它支持 AIX，FreeBSD，Linux，Mac OS，Windows 和其它操作系统；3、它提供的 API 适用于多种编程语言；4、它优化了 SQL 查询算法。它还提供了多个数据库连接选项，如 TCP/IP，ODBC 和 JDBC。

虽然 MySQL 不像 Oracle，DB2,SQL Server 和其它大型数据库那么庞大，但是它的访问速度却是很可观的，因为它是开源软件所以有着更低的成本，所以使的它成为大学生在线英语学习系统数据库的最佳选择。

3　在线英语学习系统的需求分析

3.1 英语教学和管理需要分析

系统的操作过程首先是从教师或者管理员进入学习任务，使用综合测试和其他学习内容进入系统。学生在系统注册后将会完成相关学习内容，通过在线和老师交流讨论学习要点中有困难的的地方以及学习经验。教师通过以下的方式监督学生学习和查询的有效性，该系统可以获的学生学习和测试的实时情况。管理员管理教师和他的班级。

在线英语学习系统包括管理员活动管理，教师活动管理，学生学习，测试和交流活动管理和基础功能管理。传统的英语学习系统不能打破时间和空间上的限制，对应的管理也需要教师花费大量的人力和时间去检查作业，也不能正确理解学生真正在学习过程中花费多少时间以及学生在学习过程中遇到了什么样的问题。为了提高英语学习和教学管理的质量，学院和学校需要花费一个更加智能和高效的英语在线学习系统。

3.2 在线英语学习系统的用户的功能需求

系统管理员:管理员可以查询，添加，修改或删除教师信息，将班级分配给适当的教师，以及更改或删除班级对于老师。 管理员可以访问后台管理模块
维护个人信息和管理教师课程。

管理员模块的系统要求包括添加教师，删除教师，修改教师信息，查询教师信息，添加类，删除类，修改类信息和查询类信息。

教师:教师需要登录进入系统，维护个人信息，并具有访问和操作教师功能的模块。此外，教师需要查询和管理学生的学习进度，学习笔记和词典内容等信息系统，设计学生的综合测试和写作测试。 学生之后完成相关测试后，他们可以按顺序查询学生的学习成绩掌握学生目前的学习水平。 同时，教师需要
定期回复与论坛相关的帖子，并回答学生提出的问题
学习过程。
教师功能模块的系统要求包括教师信息修改，学生信息评审，考试成绩评审，学习作业安置，学习进度审查，发布，回复等。

学生:学生需要登录系统，维护个人信息，访问学习任务测试界面，在学习任务界面上检查学习进度，学习笔记和词汇词典，完成综合测试和在测试页面中编写测试，查看自己的综合评分和编写测试完成后的表现，并在论坛模块中发布问答。学生的案子如图 2 所示。

3.3 系统功能需求

系统功能需求指的是所有的功能在软件平台上都应该有。通过对英语在线学习管理系统需求以及用户需求的分析，系统主要的功能可以在下表 1 中获得。

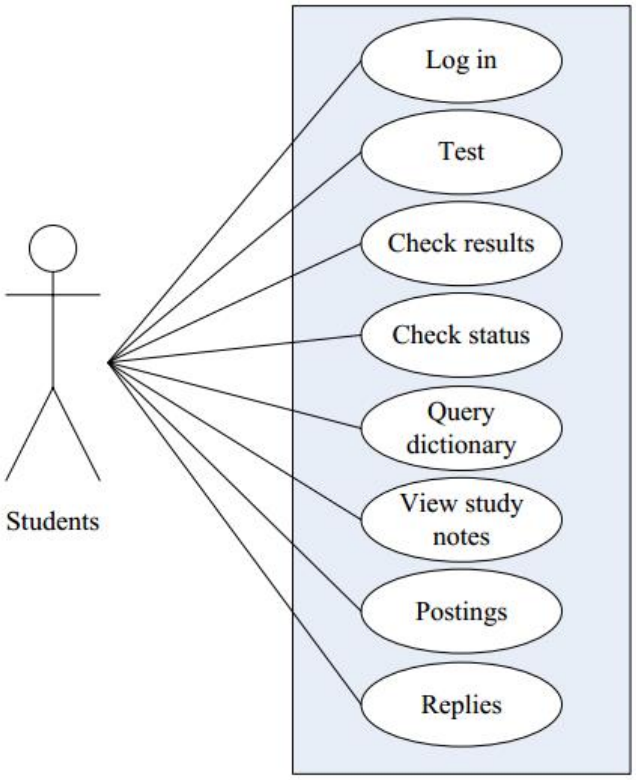

图 3.1 用户用例图

表 3.1 各模块功能描述

主要功能	描述
信息管理功能	信息管理功能包含权限管理，个人信息维护管理，查询，删除，修改
学习管理功能	教师监督和管理学生的学习过程
在线测试功能	学生参与系统的在线测试并检查他们自己的测试最后获得分数
交互功能	教师回答学生的问题，提交或者是回答

3.3 系统的非功能需求和操作环境

非功能需求：可扩展性，安全性，客观性，实时性，可维护性和灵活性是系统的主要非功能性要求。可扩展性是系统需要扩展业务功能才能满足的用户的新需求，可以延长系统的使用寿命。 安全是保护系统用户的个人信息，限制用户的权限，以确保系统的安全性，教学考试成绩等。可管理性是指系统可以根据学生的反馈调整教学程序和重置学习任务以及测试成绩。实时是指系统响应用户的

响应及时，包括分数查询，分级标准修改，发布和回复等。可维护性是指系统的高代码可读性，并在系统开发的每个阶段保存适当的文档。可行性是指用户可以输入相关信息，并轻松管理和访问数据库。

系统操作环境：电脑硬件：CPU Intel i7 920 处理器，内存 Kingstone DDR3，显卡 GeForce GT640 2G DDR5，三星 S27A550H 显示屏，集成网卡；操作系统：Windows7 终极;安装软件：DDR5，Hun，1.4。

4 在线英语学习平台的设计

这个系统主要包括系统架构，网络架构和系统的各个模块，还有数据库部分。

4.1 系统架构和网络架构设计

系统架构方面使用的 Tomcat 服务器作为核心程序，它接收来自浏览器客户端的 HTTP 请求，接着操作数据库最后将结果返回给浏览器上。

在线学习英语平台的系统架构如下图 3 所示。

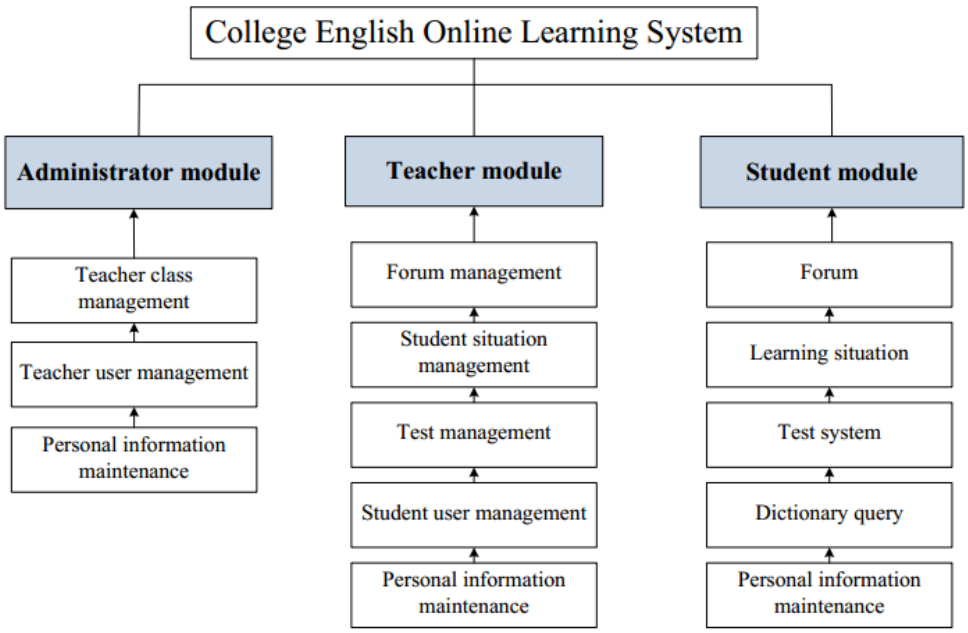

图 4.1 完整功能模块图

在线英语学习平台的网络架构的设计如下：系统的网络架构设计如下：服务器连接到每个交换机，并通过硬件连接到校园网络防火墙和路由器；另一方面，每个交换机都连接到计算机中计算机实验室，教学楼和学生宿舍，形成了基础网络架构。该系统主要用于小型内部网络，因此系统实现在速度和效率上保证了小负载和安全性高。

系统的整体功能模块划分为三部分，分别是管理员模块，教师和学生模块。相应的系统用户需求设计和分析功能，如图所示：

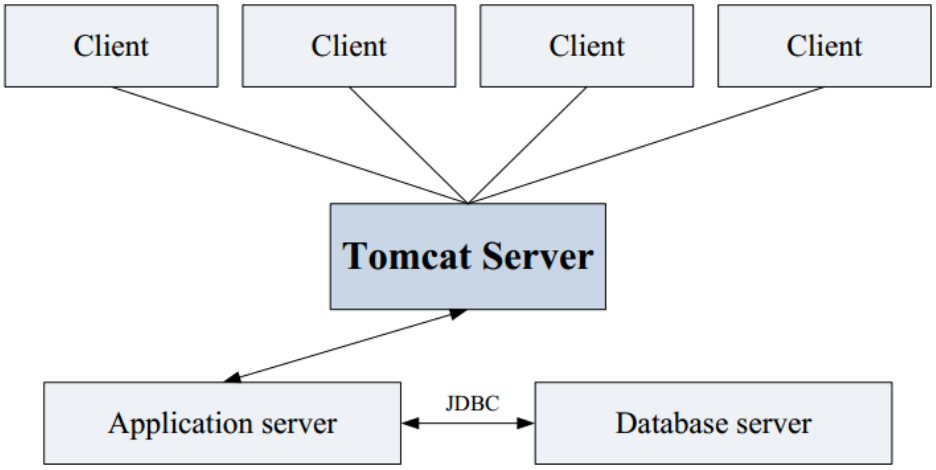

图 4.2 系统结构

4.2 数据库设计

数据库的概念设计是指对收集的信息和数据的分析，以及实体，属性和连接的确定，即由实体关系方法设计的数据库的概念模型。设计数据库表的字段，字段类型，字段长度和其他相关属性数据库存储。如表 2 所示，系统管理员的数据表记录了管理员相关信息，以及系统中的其他角色类似于表格中的格式。
综合测试表，综合测试表，测试控制表，全面的测试答案管理表，编写问题表，编写测试表格，学生笔记本表格，学习计划和时间表，发布和回复数据表类似地存储在表 2 中。所有用户信息和教学管理信息在存储之后通过 JDBC 与系统连接 MySQL 数据库。

4.3 系统接口设计和实现

系统用户可以在系统注册结束之后获得登陆权。系统接口包含登陆接口，管理员接口，教师管理接口，和学生活动接口。

如图 5 所示，在教师管理接口中教师可以删除修改学生信息并掌控学生的信息情况。

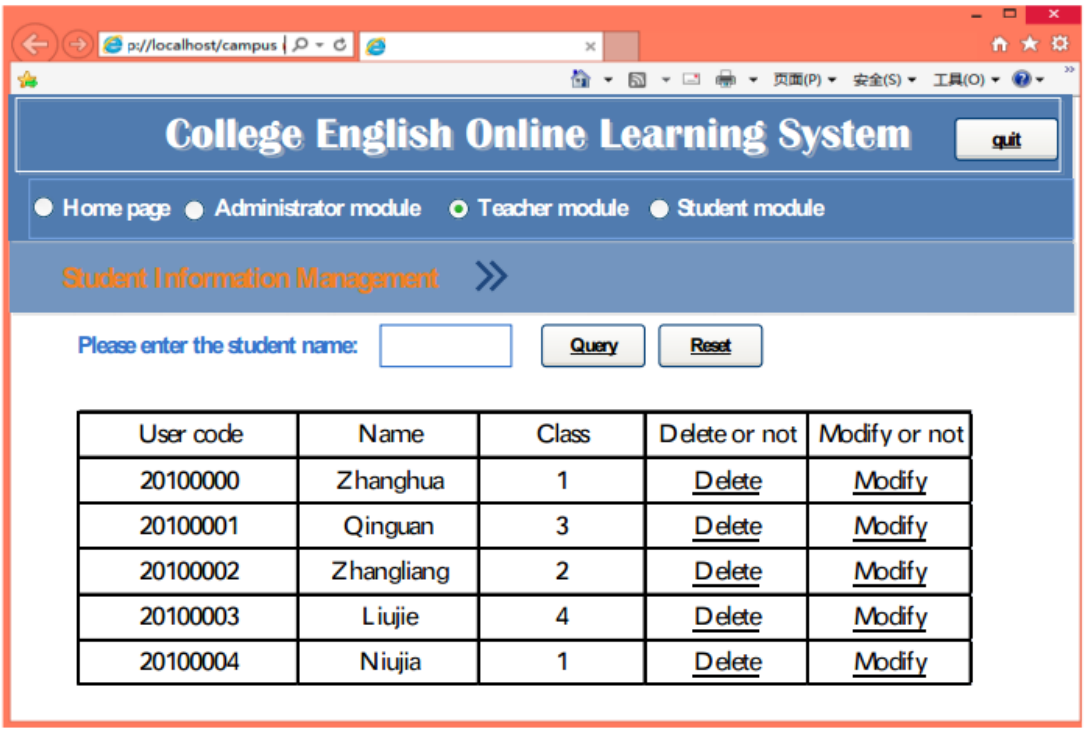

图 4.1 教师管理界面

如图 6 所示，该系统是一个可以满足学生和老师之间的交流的英语在线学习平台，学生可以根据自己的疑虑发布问题，教师可以适当地回答学生的帖子。该平台有效地满足了师生在英语学习中的交流。

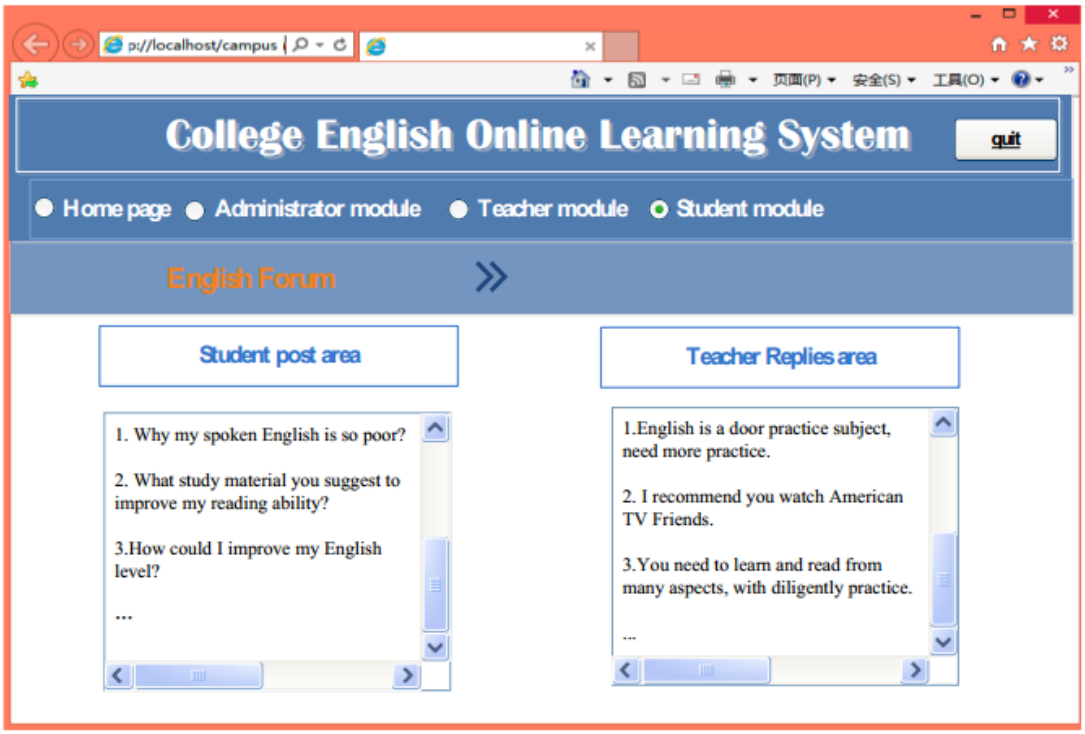

图 4.2 学生表格界面

这里不再一一描述其他的系统接口。系统可以在本地校园网中稳定运行，并

且数据访问和传输满足预期要求。管理员，学生和教师可以很好地参与在线英语学习系统，以提高英语教学效率和效用。

5 总结

针对现有技术功能不完全，运行不稳定的问题本文设计了一个基于 B/S 结构的在线英语学习系统。首先，我们对用户需求和功能要求系统进行了详细分析，选择了适当的计算机技术以及设计了的网络架构和功能模块。 最后，相关设计完成后显示界面。 主要创作和本文的创新点如下：

1.以 B / S 为软件架构，MySQL 为数据库开发工具和 JSP 作为编程技术，对于大学在线英语学习系统学生的设计，它满足了用户的功能和非功能需求。

2.结合计算机和互联网技术，英语学习已经联网和信息化，这将有助于提高高校英语的教学水平。

3.系统的安全性，可扩展性，灵活性和其他功能将有助于系统的第二次开发，以满足用户的新功能要求。

原文：

Application of Browser/Server Architecture in College English Online Learning System Design

In order to realize the information management of college English learning, improve the management efficiency of college English teaching, and reform the traditional applied teaching mode, this paper proposed to design a college English online learning system, which uses Browser/Server (B/S) as the architecture, JSP technology as the programing language, and MySQL data- base technology as the data storage and management database. Then, this paper fully analyzed the requirements of network English teaching and management and the demands of system users. On this basis, functional module, database de- sign and overall system architecture were designed, with the relevant interface displayed. The design and implementation of the system can improve the efficiency and quality of English teaching and effectively advance the teaching level of college English, which can be applied into extensive fields.

Keywords—B/S, JSP, MySQL database, online English learning, system de- sign

1 Introduction

Informatization is the general trend of economic development worldwide today, and the degree of informatization in the field of education in our country is also in- creasing year by year. In order to adapt to the new viewpoint of elementary education reform proposed by the state, more and more scholars in China have paid more attention to the informatization of the educational industry However, in the process of actual English education in Chinese colleges and universities, the traditional teaching mode is still commonly used in English teaching in our country, which deviates from the trend of educational informationization. For English learning that requires a high- ly active participation of both learners and teachers, the traditional teaching model has no longer meet the increasing demands .

E-Learning or online learning, as an indispensable part of the development of modern educational informatization, provides a new communication mechanism and abundant learning resources, enabling a brand-new e-learning environment for teaching . A survey conducted by the Campus Computing Project in the United States in 2015 shows that over 85% of U.S. campuses have implemented online learning systems in schools, with the penetration rate increasing from 10% in 2000 to 85%. This shows that online learning has good application prospects and effect . Although English learning websites and online learning systems have continuously sprung up in recent years and have enriched teaching resources to a certain extent and provided multi-dimensional learning options, the systems are still deficient in functionality, security, interactivity and openness . Some scholars have established an English learning system based on campus network, but the management function is imperfect, failing to meet the requirements of teaching management. Some scholars have pro- posed a corpus-based English learning model, but due to the lack of teaching-learning communication, the teaching effectiveness is poor. At present, there are some short-

comings of the existing online English learning system, such as the imperfect teaching mechanism, homogeneous contents, the lack of innovation, and the insufficient net- work security .

This paper aims to provide a highly interactive, intelligent, safe, and cultural online English learning platform. The system take B / S as the software development architecture, and MySQL as the database development tools, combined with JSP dynamic web development technology, to achieve re-development and operations in most computer hardware. At the same time, the system uses object-oriented approach to meet the actual English learning needs and teaching management needs. This paper analyzed the system design goals and main functional requirements in details, completed the system design and interface design, and finally realized the design of the online English learning system based on the B / S framework. The implementation of the system can improve the quality of teaching and learning, meet the needs of the teaching data, software platform, hardware equipment, and network equipment, and provide a information platform for communication, learning, and interaction among students, teachers and administrators.

2 Introduction to Relevant Computer Technologies

2.1 B / S Mode

B / S structure (Browser / Server mode) is an effective improvement of the C / S structure with the development of Internet technology, which is realized in the user interface through the browser. And the vast majority of logical transactions are achieved in the server. This reduces the load on the client computers and increases the efficiency of system maintenance and upgrades . The data access in the B / S mode starts from the presentation layer to the application layer and then to the data layer, so the system architecture of the B / S mode is also divided into the presentation layer, application layer, and data layer, as shown in Figure 1.

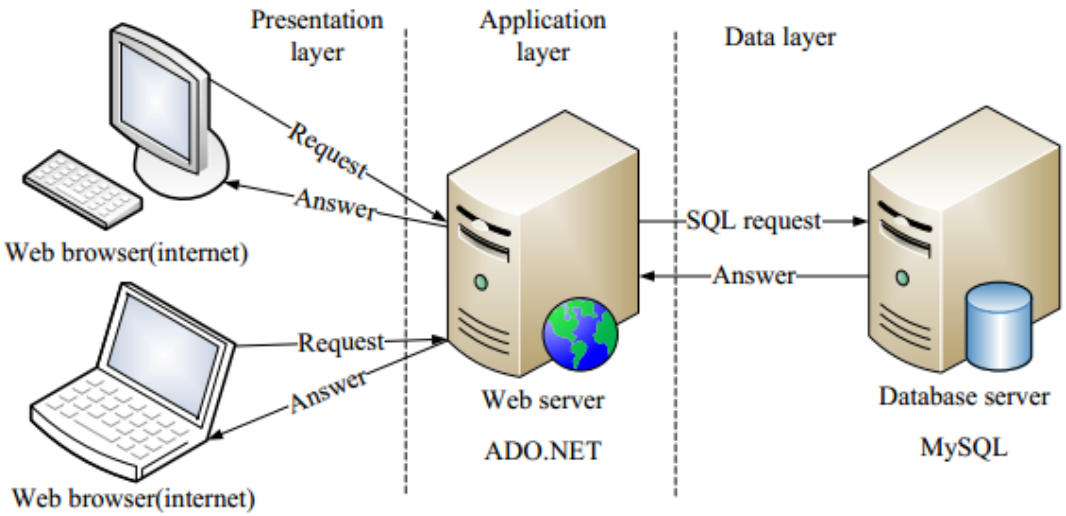

Fig. 1. B/S System architecture diagram

B / S architecture software has the advantages of simple maintenance and up- grades, and main maintenance is on the server, greatly improving the maintenance efficiency. The B / S architecture

is suitable for Linux operating system, Window operating system, and a variety of free databases, reducing system operating costs . Compared with the C / S mode, the B / S mode can be built on the WAN and doesn't necessarily require a special network hardware environment, with a stronger adaptability. The C/S mode interacts through the browser. The common browser can be found in each client machine, leading to relatively low safety. Therefore, the model is suitable for high interactive requirements and more users but low safety requirements. The B / S mode requires that relatively independent components and can be reused. In summary, the C/S development model and B/S development model both belong to the development model under network environment, and the B/S model has relatively more advantages through analysis, so now a large number of applications gradually shift from C/S mode to B/S mode.

In summary, the system used the B / S architecture, which is more suitable for the current network development environment and has more advantages in convenience, security, etc.

2.2 JSP Programing Language

JSP, namely Java Server Pages, is a dynamic web technology standard. JSP can be obtained through simply developing WEB program. With a simple HTML foundation, by modifying the script file, .htm file can be transferred into .jsp file. Using JSP development technology, the web server receives the request to access the JSP page, executes the program segment, and returns the result together with the HTML code to the client .

The applications of the JSP technology under the B / S mode has the following characteristics:

1.JSP development language is easy to write, which one can quickly master based on HTML and Java language, and only addition of JSP fields in the HTML pages written by web author, can realize JSP pages.

2.Just one programing can realize multiple operations. Edit all JSPs into Java servlets ,then it will have all the benefits of Java technology .

3.With high reusability, JSP, when re-called, only requires changes in the internal design, without changing the code to improve the system reusability.

4.JSP is cross-platform, which is in line with the B / S model. JSP can run on almost all operating system platforms, and can be ported on different platforms.

5.It can be connected with most database technologies, including Mircosoft Server, Oracle, Sybase, MySQL, Informix, etc. also, it can realize connection between drivers and database on basis of JDBC (Java Database Connectivity).

2.3 Introduction to MySQL

MySQL is a popular open source SQL data management system. The MySQL service supports the use of heavy-duty production systems, or it can be embedded in software with large configuration .

MySQL features include the following points: 1. It is programmed by C and C++, and can be tested by multiple compilers to ensure code portability. 2. It supports AIX, FreeBSD, Linux, Mac OS, Windows, and other operating systems. 3. It provides APIs for multiple programming languages. 4. It optimizes the SQL query algorithm. 5. It optimizes the SQL query algorithm, speeding up the database query and access. 6. It provides multiple database connectivity options such as TCP / IP, ODBC, and JDBC .Although MySQL is not as large as Oracle, DB2, SQL Server and other large data- bases, its access speed is objective, without open source software code and lower cost, making it the best choices for college students' online English learning system data- base .

3 Analysis of Requirements for Online English Learning System

3.1 Analysis of English Teaching and Management Needs

System operation process is that firstly teachers and administrators enter learning tasks, comprehensive testing and other learning content into system. Students complete the relevant learning content after registering in the system, and exchange difficult learning points and learning experience through online communication with teachers. Teachers monitor the effectiveness of student learning and inquiries through the system to get the real-time situation of students learning and tests. Administrators manage teachers and their classes .

English online learning system includes management of administrator activities, teacher activity management, student learning, testing and communication activities management and other basic functions of management. The traditional English learning system can not break through the limitation of time and place, and the corresponding management requires teachers to spend a lot of manpower and time to correct the homework, and can not understand the process of students' learning in real time or learn the problem in students' learning in time. In order to improve the efficiency of English learning and teaching management, colleges and universities need a more intelligent and efficient English online learning system .

3.2 Users' Functional Requirements for Online Learning System

System Administrator. Administrators can query, add, modify or delete teacher information, assign the class to the appropriate teacher, and change or delete classes for teachers. Administrators can access to the background management module to maintain personal information and manage teachers' classes.

System requirements for the administrator module include adding teachers, deleting teachers, modifying teacher information, querying teacher information, adding classes, deleting classes, modifying class information, and querying class information. Teachers. Teachers need to log in the system, maintain personal information, and visit and operate teacher functional module. Also, teachers need to query and manage information such as students' learning progress, study notes and dictionary contents in the system, and design students' comprehensive tests and writing tests. After students complete relevant tests, they can inquire the students' academic performance in order to master the students' present level of learning. At the same time, teachers need to regularly reply to forum-related posts and answer questions raised by students in the
learning process.

The system requirements for the teacher function module include teacher information modification, student information review, test grade review, study assignment placement, learning progress review, posting, replying, etc.

Students. Students need to log in the system, maintain personal information, visit the learning task test interface, check the learning progress, study notes and vocabulary dictionary on the learning task interface, complete the comprehensive test and writing test in the test page, review their own comprehensive score and writing test performance after completing, and post Q&A in the forum module. The students' case is shown in Figure 2.

3.3 System Function Requirements

System functional requirements refer to all functions that the software system should have. Through analyzing the English online learning management needs and user needs, the main functions of the system are obtained as shown in Table 1.

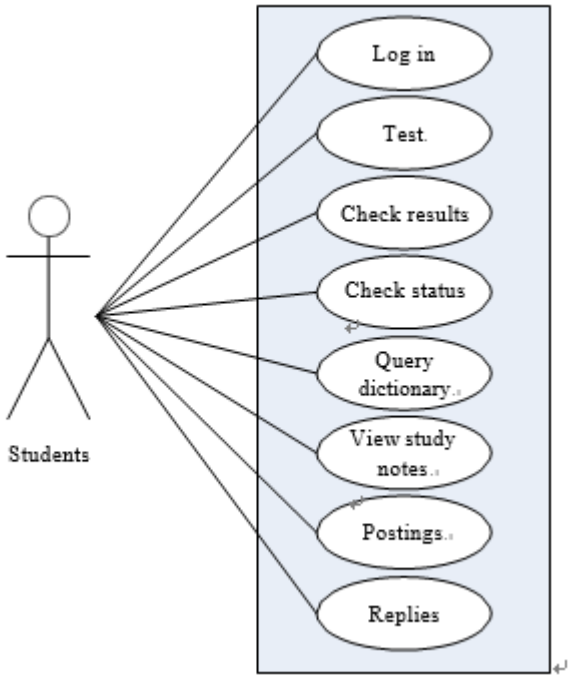

Fig. 2. The use case of student

Table 1. The main function of the system

Main function	Description
Information Management Function	Information management functions include rights management, including personal information maintenance, query, delete, modify
Learning management functions	Teachers supervise and manage the learning process of students
Online test function	Students participate in online testing of the system and check their own test scores
Interaction function	Teachers answer students' questions, post or replies

3.4 System Non-functional Requirements and Operating Environment

Non-functional Requirements. Scalability, security, objectivity, real-time, maintainability and flexibility are the major non-functional requirements of the system. Scalability is the need for a system to expand the business function in order to meet the new needs of the user, which can extend the life of the system. Security is to protect the system users' personal information and restrict users' authority, so as to en- sure the safety of the system, teaching test scores, etc. Manageability is that the sys- tem can adjust teaching programs and reset learning tasks according to student feed- back and test scores. Real-time refers to that the system respond to the user's response in time, including score query, grading standard modification, posting and reply, etc. Maintainability refers to the system's high code readability and the appropriate document is saved at each stage of the system development. Fexibility refers to that the user can enter the relevant information, and easily manage and visit the database.

System Operating Environment. Computer hardware: CPU Intel i7 920 processor, memory

Kingstone DDR3, graphics card GeForce GT640 2G DDR5, Samsung S27A550H display, integrated network card; operation system: Windows7 ultimate; install software: DDR5, Hun, 1.4.

4 Design of Online English Learning System

The system design mainly includes the system architecture, the network architecture and the system overall function module, as well as the database table.

4.1 System Architecture and Network Architecture Design

The architecture of the system takes the Tomcat server as the core, accepts the HTTP request from the browser client, then processes the MySQL database, and finally returns the results to the client. The design of the system architecture of college English online learning system is shown in Figure 3.

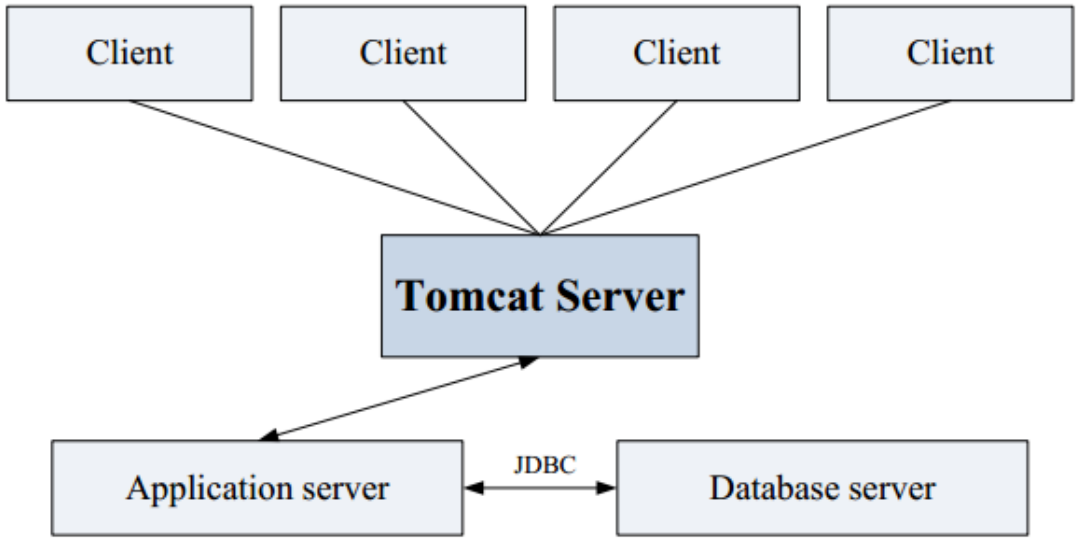

Fig. 3. The system structure

The network architecture of the system is designed as follows: the server is connected to each switch, and is connected to the campus network through a hardware firewall and a router; on the other hand, each switch is connected to computers in the computer lab, the teaching building and the student dormitory, which forms the basic network architecture. The system is mainly used for small-scale internal network, so the system implementation speed and efficiency are guaranteed with small load and high security.

The overall function modules of the system are divided into three, namely the administrator module, teacher module, and student module. The corresponding system functions is designed and analyzed according to the system user needs, as shown in Figure 4.

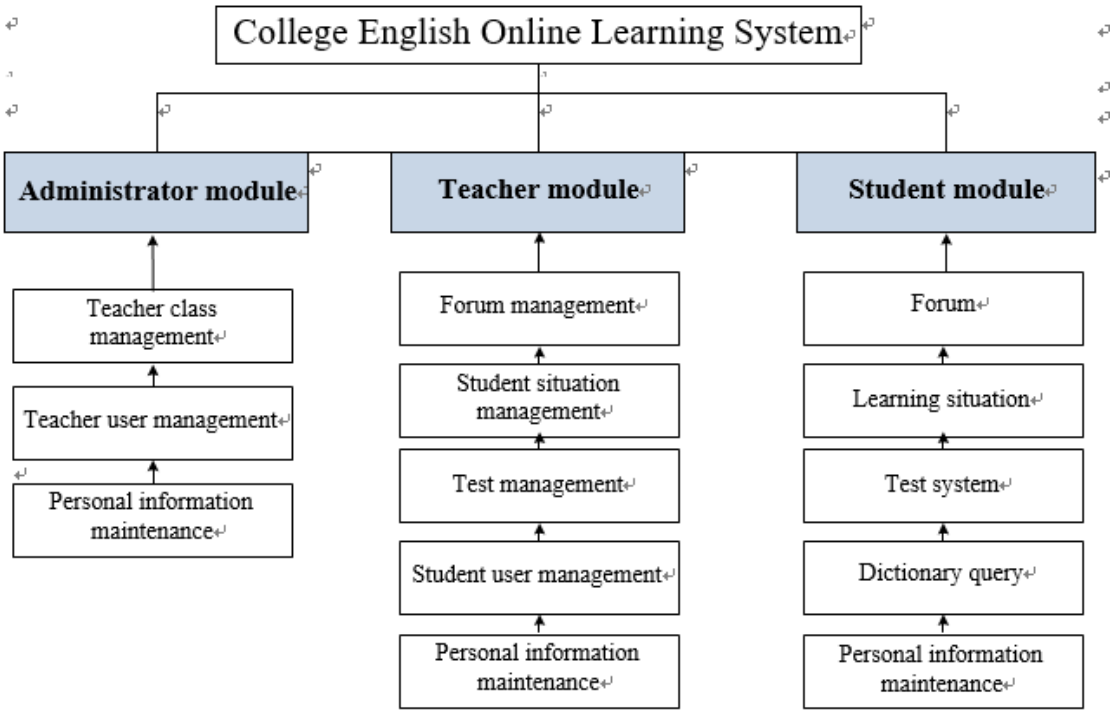

Fig. 4. Overall function module

4.2 Database Design

The conceptual design of the database refers to analysis of the collected information and data, and determination of the entities, attributes and connections, namely a concept model of the database designed by the entity-relationship method. Design the fields, field types, field length and other related attributes of the database table for the database storing. As shown in Table 2, it is the data table of the system administrator that records administrator related information, and the other roles in the system are similar to the format in the table.

Comprehensive test forms, comprehensive test coupon tables, test control tables, comprehensive test answer management tables, writing problem tables, writing test forms, student notebook forms, learning schedule and timeline, posting and replying data tables are similarly stored as Table 2. All user information and teaching management information connect with the system through JDBC after storing in the MySQL database.

Table 2. The table of Administrator

No.	Field names	Field Type	Empty or not	key	Field description
1	Ad_loginName	Varchar	N	Home key	Log name
2	Password	Varchar	N		Password
3	RealName	Varchar	Y		Real name
4	Dep_NO	Varchar	N	foreign key	department
5	Phone	Varchar	Y		Contact number
6	E_Mail	Varchar	Y		email
7	MSN	Varchar	Y		MSN
8	Demo	Memo	Y		remark

4.3 System Interface Design and Implementation

The system user can obtain the system login permission after completing the sys- tem registration. The system interface includes a login interface, an administrator interface, a teacher management interface and a student activity interface.

As shown in Figure 5, in the teacher management interface, the teacher can delete or modify the student information and master students learning conditions.

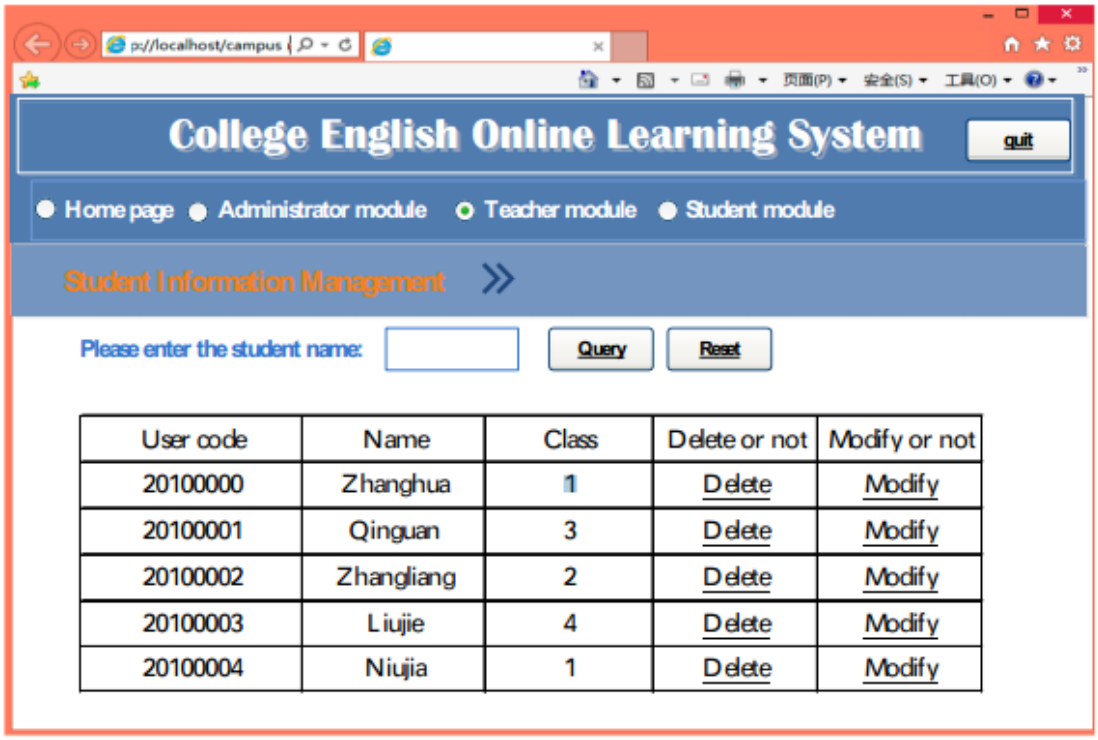

Fig. 5. Teacher Management Interface

As shown in Figure 6, the system is an English online learning platform to meet the exchanges between students and teachers, on which students can post questions ac- cording to their own doubts, and teachers reply appropriately to the students' posts. This platform effectively meets the teacher-student exchange in English learning.

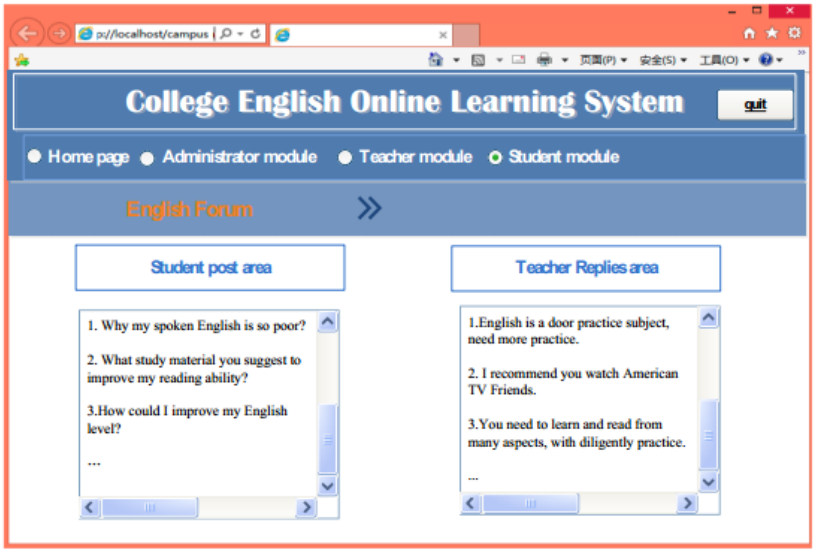

Fig. 6. Student forum interface

The interfaces of other systems are not described here one by one. The system can run stably in the local campus network, and the data access and transmission meet the expected requirements. Administrators, students and teachers can participate well in the online English learning system, so as to improve English teaching efficiency and effectiveness.

5 Conclusion

Aiming at the problems of incomplete function and unstable operations of existing English learning systems, this paper designed an online English learning system based on B/S for college students. First, the user needs and functional requirements for the system were analyzed in detail, with the appropriate computer technology selected and the network architecture and function modules designed. Finally, the relevant interfaces were displayed after the design was completed. The main creation and innovations of this paper are as follows:

1.With B/S as software architecture, MySQL as database development tool and JSP as the programming technology, the online English learning system for college students was designed, which satisfied users' functional and non-functional needs.

2.Combining computer and Internet technology, English learning has been net- worked and information-based, which will help to improve the quality of English teaching in colleges and universities.

3.The system's security, extensibility, flexibility and other features will facilitate the second development of the system to meet the user's new functional requirements.